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[Heading] MUSCULOSKELETAL IMAGING

Radiographically Occult Medial Cuneiform Impaction Fracture

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A 25-year-old woman reported to the emergency department with right medial midfoot pain after kicking a wall, inducing a first-ray axial/plantar flexion compressive force. The patient was unable to weight bear immediately after the injury. Erythema and edema ~~was~~ were present at the medial midfoot. Radiographs were noncontributory (**FIGURE 1**, available at www.jospt.org). The patient was diagnosed with a metatarsal contusion and was instructed to use ice and~~,~~ ibuprofen~~,~~ and to weight bear as tolerated on crutches.

The patient returned to full weight bearing 3 days later;~~,~~ however, persistent pain 3.5 weeks post injury led her to seek a direct-access physical therapy evaluation. Her pain was exacerbated with the first steps when getting out of bed and by walking barefoot. The examination revealed mild ecchymosis at the medial and plantar midfoot. During gait, the patient ~~was noted to~~bore weight bear along the lateral foot to avoid pronation in stance and experienced 3/10 to 4/10 pain. The medial cuneiform was tender to palpation. Due to concern for a medial cuneiform fracture or a medial midfoot sprain, the physical therapist requested magnetic resonance imaging, which confirmed a medial cuneiform fracture (**FIGURE 2**; **FIGURE 3**, available at www.jospt.org).

The patient utilized a cam boot for 2 weeks; transitioned to a flat, hard-soled shoe at 5 weeks post injury;~~,~~ and footwear restrictions were removed 6 weeks post

injury. The patient returned to running and lunges with only mild discomfort 12 weeks post injury.

Isolated medial cuneiform fractures are commonly missed at baseline evaluation and are typically occult in initial radiographs.[2] Definitive diagnosis usually occurs after continued symptoms prompt advanced diagnostic imaging. Conservative management is commonly sufficient to restore prior function.[1] *J Orthop Sports Phys Ther 2019;49(9):xxx. doi:10.2519/jospt.2019.8778*

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~~[online]~~

FIGURE 1. (A) Anterior-to-posterior, (B) oblique, and (C) lateral radiographs of the right foot, taken on the day of the injury, demonstrating no signs of fracture.

FIGURE 2. (A) Long-axis, axial, T2-weighted right-foot magnetic resonance image demonstrating cortical irregularity (arrow). (B) Sagittal, T1-weighted right-foot magnetic resonance image demonstrating signal hypointensity (arrow). (C) Sagittal, short-tau inversion recovery, weighted right-foot magnetic resonance image demonstrating signal hyperintensity (arrow) of the medial cuneiform without involvement of the plantar metatarsal ligaments, consistent with an isolated medial cuneiform impaction fracture.

[online]

FIGURE 3. [scrollable MRI]